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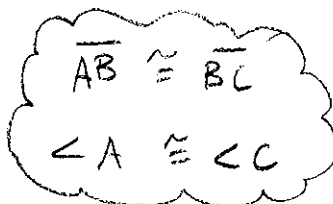
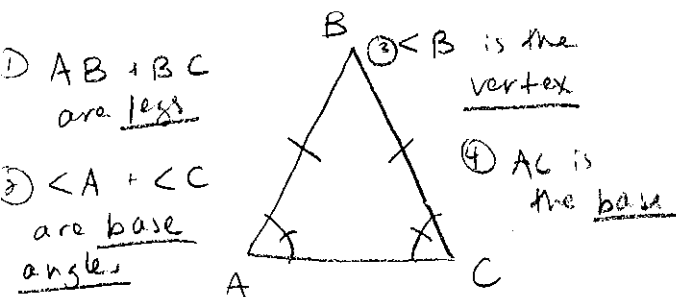
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### Isosceles and Equilateral Triangles

#### Isosceles Triangle

a triangle that has two sides of equal length

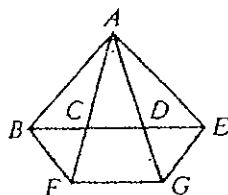


#### Equilateral Triangle

(we will discuss later)

#### Example 1

Given  $\overline{AB} \cong \overline{AE}$ , name an isosceles triangle and its two congruent angles.



#### Solution

$\triangle ABE$  is isosceles.  
 $\angle ABE \cong \angle AEB$

Refer to the figure in Example 1. Given two congruent segments, name the isosceles triangle and its two congruent base angles.

1.  $\overline{AC} \cong \overline{AD}$   
 $\angle ACD \cong \angle ADC$

2.  $\overline{AF} \cong \overline{AG}$   
 $\angle AFG \cong \angle AGF$

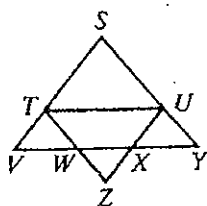
3.  $\overline{BC} \cong \overline{CE}$   
 $\angle CBF \cong \angle CEB$

4.  $\overline{GD} \cong \overline{DE}$   
 $\angle DGE \cong \angle DEG$

WLPCS  
Geometry

**Example 2**

Given  $\angle V \cong \angle Y$ , name an isosceles triangle and its two legs.



**Solution**

$\triangle SVY$  is isosceles.  
 $\overline{SV} \cong \overline{SY}$

Refer to the figure in Example 2. Given two congruent angles, name an isosceles triangle and its two legs.

5.  $\angle STU \cong \angle SUT$

6.  $\angle V \cong \angle TWV$

7.  $\angle UTZ \cong \angle TUZ$

8.  $\angle XWZ \cong \angle WXZ$

$\overline{ST} \cong \overline{SU}$

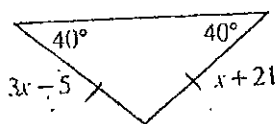
$\overline{TV} \cong \overline{TW}$

$\overline{TZ} \cong \overline{UZ}$

$\overline{WZ} \cong \overline{XZ}$

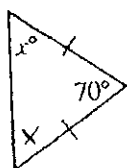
**Example 3** Find the value of  $x$ .

a.



$$\begin{array}{r} 3x - 5 = x + 21 \\ + 5 \quad \quad + 5 \\ \hline \end{array}$$

b.



$x + x = 110$

$x = 55^\circ$

$$\begin{array}{r} 3x = x + 26 \\ - x \quad - x \\ \hline \end{array}$$

$2x = 26$

$x = 13$